CS280 Exam Reminders

In Java…

- References to Objects are used exclusively.
- There are no variables of pointer type in Java.
- An assignment of one object to another makes a copy of the reference to the object, NOT a copy of the object.

In C and in C++

- A variable declared as `int * xp;` means that `xp` is a pointer to something of type `int`.
- A pointer contains an address. It must be initialized from another pointer (which is an address), or by the address of something. The & operator means "address of". So, if I have a variable declared `int x;` and another declared `int *xp;` then the expression `xp = &x;` will initialize `xp` to the address of `x`. In other words, `xp` will "point to" `x`.
- To access what a pointer points to, the * operator is used. Using our declarations and initialization above, the expression written `*xp` means "what xp points to". Since `xp` is a pointer to an `int`, `*xp` is an `int`.
- The semantics of pointer arithmetic is that adding an integer N to a pointer advances the pointer by N times the size of what the pointer points to.
- X[i] is the same thing as *(X + i).

In addition, in C++

- A variable declared as `int & xr;` means that `xr` is a reference to an `int`.
- A variable of type reference must be initialized when it's declared.
- Using a variable of type reference in an expression evaluates to the item that the reference has been initialized to refer to.

Regular expression rules

X	any character X
\x	an escaped character, e.g., \n, *
M | N	M or N
MN	M followed by N
M*	zero or more occurrences of M
M+	One or more occurrences of M
M?	Zero or one occurrence of M
[characters]	choose from the characters in []
	[abc] is the same as a|b|c
	[aeiou] means the set of vowels
	[0-9] means the set of digits
	[a-z] means all lowercase letters
	A caret at the beginning means "not these characters"
	[^a-z] means not any of the characters a-z
.	A dot is any single character
\.	Matches the dot character

Note you can parenthesize for readability.